

Claims

1-5 (Cancelled)

6 (Original) A carbon based protective padding for a MEMS device, the carbon based protective padding further adapted to accurately and reliably establish a one nanometer spacing between a conducting surface on the MEMS device and a tunneling tip, the carbon based protective padding comprising a film of fullerene C₆₀ having a thickness of one molecule, said film located at the conducting surface between the tunneling tip and the conducting surface.

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7 (Previously Added) A microelectromechanical system (MEMS) device including a diaphragm comprising a conducting surface, the MEMS device further comprising exactly one layer of C₆₀ fullerene on the conducting surface.

8 (Previously Added) The MEMS device of claim 7, wherein the conducting surface includes gold.

9 (Previously Added) The MEMS device of claim 8, where the C₆₀ fullerene is deposited on the gold surface by sublimation.

10 (Previously Added) The MEMS device of claim 8 where the C₆₀ fullerene is deposited on the gold surface by chemisorbtion.

11 (Previously Added) The MEMS device of claim 7 further comprising a single event pipe containing a gas that reacts with carbon byproducts.

12 (Previously Added) A mechanically adjustable electron tunneling tip system comprising:

a tunneling tip including a piezoelectric element connected to an end of the
tunneling tip;

B2 a MEMS device including a conducting surface opposed the tunneling tip; and

a single layer of C₆₀ fullerene between the tunneling tip and the MEMS device
conducting surface.
